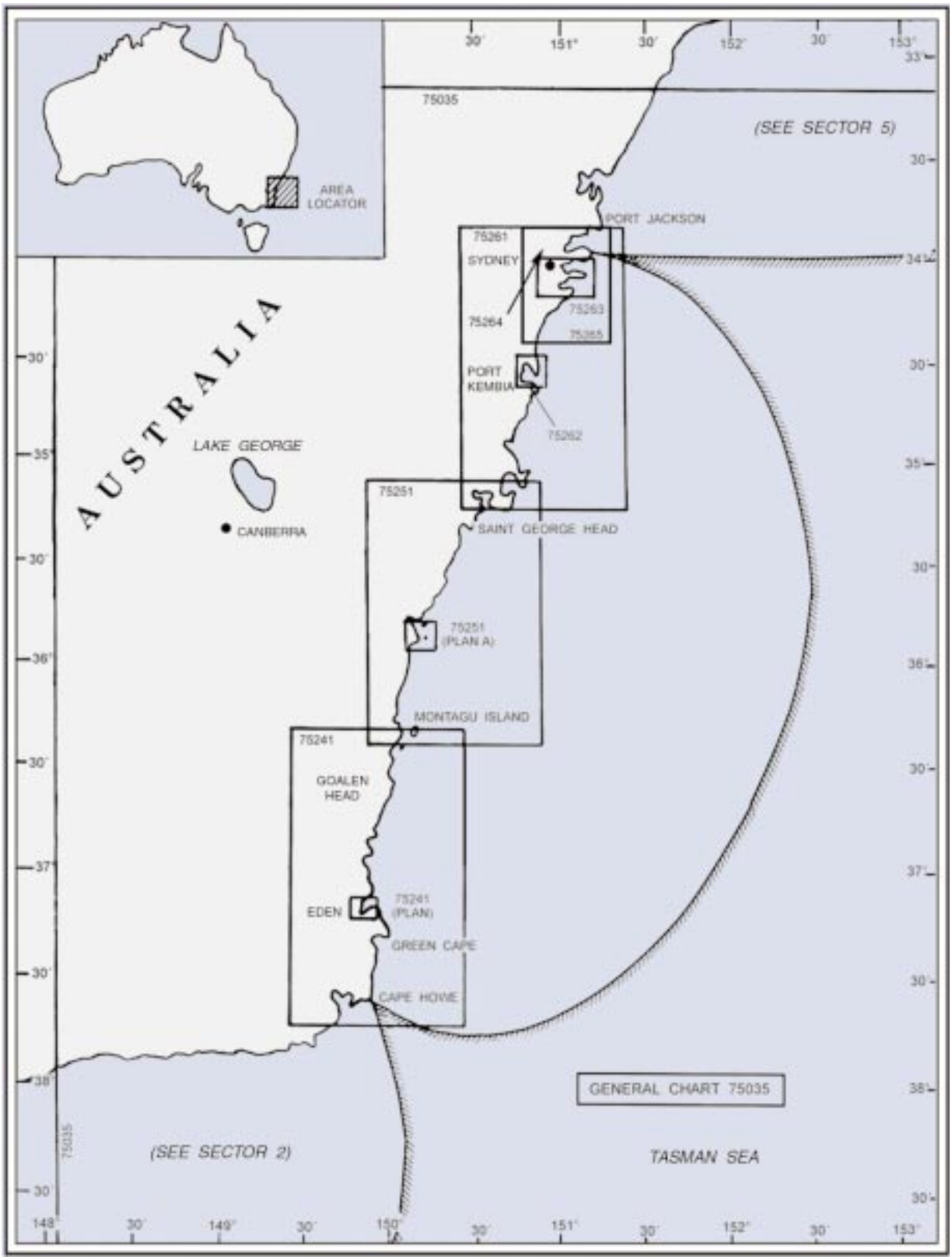

Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR **4** — CHART INFORMATION

SECTOR 4

AUSTRALIA—COAST OF NEW SOUTH WALES—CAPE HOWE TO PORT JACKSON

Plan.—This sector describes the E coast of New South Wales between Cape Howe, which is located approximately on the boundary between the States of Victoria and New South Wales and Port Jackson, NNE. The sector includes the ports of Kembla, Botany Bay, and Sydney, the principal Australian port. The descriptive sequence is from S to N.

General Remarks

4.1 The coast of New South Wales between Cape Howe and Port Jackson is penetrated with a series of recesses. This coastal region is well-watered by rivers, although many are short, swift, and unnavigable. Moderate-sized vessels may find shelter in Twofold Bay and Batemans Bay. Deep-draft vessels will find anchorage along the coast, but the more important is at Port Kembla, Botany Bay, and Port Jackson.

There are some areas within 1 mile of the coast of New South Wales that lack detailed surveys. It is also possible there may be uncharted obstructions.

Caution is also advised when in the vicinity of Jervis Bay, where submarines exercise frequently in the approaches. A good lookout must prevail in this area, as firing practices and other naval exercises also take place.

Winds—Weather.—The section of the Australian coast described in this sector is dominated by an area of high pressure.

The prevailing winds between Cape Howe and Port Jackson are from the NE from October to April and from the W from May to September. Very oppressive hot winds from the NW sometimes prevail from November to February, and are usually followed by a sudden shift from between the SE and SSW, and against which vessels near the coast should be particularly guarded, as the gust is generally very violent. There are also frequently sudden changes from the NW to S, from September to February, without warning, and these are well-known as the southerly busters. The effect is so great that the thermometer at Port Jackson descends from 38˚ to 18˚C in less than 30 minutes. These storms may last only a few hours or for several days, and average 32 in number during the season.

Land and sea breezes are frequent from November to February; the NE wind springs up from a calm in the morning and subsides about midnight.

Fog is rare except in the summer months and then seldom lasts longer than from dawn to mid-morning.

Tides—Currents.—The East Australian Coast Current sets S throughout the year along the New South Wales coast from the S coast of Queensland to the vicinity of Cape Howe. The current here is less strong and constant than the N part. This effect occurs due to water branching off from the seaward side of the current between 32˚S, and 34˚S, turning SE and passing into the open ocean.

Cape Howe to Bass Point

4.2 **Cape Howe**, (37˚30'S., 149˚59'E.) is low and formed of stones and sand; sunken rocks project 0.3 mile E from the cape. The prominent feature on this part of the coastline is in Howe Hill (37˚31'S., 149˚53'E.), 4 miles W of Cape Howe, rising abruptly from low land to a summit shaped like a haystack. Northwest of Cape Howe, at about 5 miles on the tree-cleared boundary between the States of Victoria and New South Wales, is Mount Carlyle, rising to 362m, part of the Howe Range. Generally, the whole aspect of the land about Cape Howe is that of a mountainous district, as the Table Hills NNW of the Howe Range runs to Disaster Bay, and similar hills border the coast which consists of steep rocky spikes and indentations of sand.

Disaster Bay (37˚16'S., 149˚58'E.) indents the coast, providing 3.5 miles of sandy beach. The NE side of the bay is marked by a light at Green Cape, which is steep-to with no outlying dangers. There is a signal station at Green Cape providing a telephone communication link to Gabo Island and Twofold Bay. Communication to Green Cape can be made by International Code, but there is no special monitoring at night.. Green Cape has given good radar returns up to 18 miles.

Anchorage.—Anchorage is available, in depths of 21.9 to 31.1m,sand bottom, under Skelton Hill (Green Hill), during NE winds.

The coastline from Green Cape to Twofold Bay is bold and continues with rocky points and sandy beaches, where depths of 27.4 to 36.5m can be found 0.5 mile off the shore. The back country is hilly where Haycock Hill, 251m high, dominates, but at about 11 miles W of Haycock Hill is the remarkable wooded peak of Mount Imlay, 887m high. A feature which is quite conspicuous from the S is Mowwarry Rock, lying close in at Mowwarry Point.

4.3 **Twofold Bay** (37˚04'S., 149˚56'E.) is entered from seaward between **Red Point** (37˚06'S., 149˚57'E.), on which stands Boyds Tower, and Worang Point, about 2.5 miles further N. The bay offers depths of 18.3 to 40.2m between the entrance points, shoaling gradually towards its head. The bay is generally free of dangers, except for Seahorse Shoal a group of steep-to patches, with depths of less than 6.4m, lying up to 0.6 mile NNE of Red Point.

Mount Imlay, bearing 240˚, is an excellent mark for entering the bay.

The S shore of Twofold Bay between Red Point and Honeysuckle Point forms an exposed bay where depths of 7m will be found off the points, but depths of 14 to 20m will exist between them. Characteristic of the coastline between Honeysuckle Point to Munganno Point (Munganoa Point), the NE point of East Boyd Bay is that of a rather bold, cliffy shore which extends WSW for 0.6 mile.

East Boyd Bay indents the coast about 2 miles S of Lookout Point, and is entered between Munganno Point and Brierly Point, about 1 mile SW.

Anchorage.—Vessels greater than 3,000 grt should not anchor inside the port limits, inshore of a line joining Worang Point and Red Point, without the express permission of the harbormaster.

Nullica Bay forms the W bight of Twofold Bay; it offers 7.9 to 9.3m of water throughout its extent, but shoals rapidly within 0.1 mile of the shore. From Nullica Bay to Snug Cove, shoals and rocks extend up to 0.1 mile offshore.

Eden (37˚04'S., 149˚56'E.)

World Port Index No. 53810

4.4 Eden is situated on the N shore of Twofold Bay. It is comprised of the jetties W of Lookout Point (Snug Cove), the tanker mooring W of the same point, and the dry bulk berth situated on the S side of the bay at Munganno Point. The port limits are designated by a line drawn from Worang Point S to Red Point.

Port of Eden

http://www.eden.nsw.gov.au

Tides—Currents.—The tidal rise at Eden is 1.3m at MHHW.

Depths—Limitations.—Eden East Breakwater, situated about 0.3 mile WNW of Lookout Point, has a berth along its inner face.

The Breakwater Wharf is 104m long, with depths of 3.0 to 8.5m.

Directly NW of the breakwater is the Eden Jetty (Multipurpose Jetty). The pier is 183m long with alongside depths of 4.9 to 7.3m.

The next pier directly NW is the Moorings Jetty and is used exclusively by fishing vessels. It is a private jetty with a length of 145m and depths of 2 to 5m alongside.

The Munganno Point woodchip loading berth is T-shaped and composed of five sets of mooring dolphins in addition to 5 mooring buoys. It can handle vessels up to 230m in length and 50,000 grt. The maximum draft is 11.3m.

Aspect.—A light is shown from Lookout Point and from the end of the breakwater. Range lights, in line bearing 321.5˚, lead clear of the tanker mooring.

Pilotage.—Pilotage is compulsory for all commercial vessels over 30m long for Twofold Bay and should be requested in advance. The pilot will board incoming vessels about 1.2 miles E of Lookout Point. The pilot will respond to calls for “Eden Maritime”on VHF channel 16.

Regulations.—The Quarantine Anchorage is best seen on the chart. Vessels requiring medical or emergency assistance should communicate with the pilot station via Radio Sydney, giving ETA and requirements. The pilot acts as the customs agent.

Signals.—The Signal Station is situated on Lookout Point. No regular watch is kept, but signals will be answered if seen. A VHF communication watch is kept only when a vessel is expected.

Anchorage.—Anchorage can be taken off Snug Cove, in about 10m, sand and mud, but the anchorage in East Boyd Bay offers better protection in E and SE gales. Vessels over 3,000 grt are not allowed to anchor inside the port limits without the expressed permission of the Harbor Master.

Caution.—The quarantine anchorage is not safe for large vessels in a strong E wind or heavy E swell.

4.5 **Calle-Calle Bay** (37˚04'S., 149˚56'E.) is entered between Lookout Point and West Orange Point, about 1.7 miles NE. This bay is not desirable as an anchorage at any time, as a ground swell almost always sets into it and is exposed to the S and SE.

The coast N of Worang Point passes Bullara Island (Lennard Island), from which a reef projects a short distance from its N extremity. From the island the coast curves to the red Quoraburagun Cliffs, then to Haycock Point. Haystack Rock, a remarkable rock 15m high, lies off Haycock Point and is connected to the shore by a rocky reef. A succession of rocky points from Haystack Rock sweeps around NW to the entrance of Pambula Lake.

Good anchorage, sheltered from SW and S winds, is available off the entrance of the Pambula River, in 10.9m, with the N part of Haycock Point bearing 100˚ and Merimbula Point bearing 021˚.

Merimbula Bay is a sandy indentation lying between Haycock Point and Merimbula Point. It penetrates the coast 1.8 miles, with depths of 29.3 to 31.1m, shoaling gradually to 14.6m within 0.3 mile of the beach. Merimbula Point is a steep, cliffy headland.

The coast N forms a bight between Tura Head and Turingal Point, which is divided midway by Bowinda Island. From Turingal Point, an uneven line of granite and pipe-clay cliffs, with grassy land over them, extends to **Tathra Head** (36˚43'S., 149˚59'E.).

Aspect.—The land between Mogareka Inlet and Bunga Head N is generally poor, consisting of high scrubby hills. Again, this part of the coast is well-watered by rivers. Inland, a thickly timbered range of mountains rises N and S to Mount Townsend (Mount Mumbula). This summit, 804m high, lies 10 miles W of Bunga Head. There is a peaked summit at Bunga Head, 125m high, and sunken rocks fringe its base from 100 to 200m distant.

The coast to **Barragga Point** (36˚30'S., 150˚04'E.) from Bunga Head appears to be a series of small rocky points fringed with sunken rocks.

4.6 **Bermagui Inlet** (36˚25'S., 150˚04'E.) is a small, sandy inlet into which flows the Bermagui River. A conspicuous tank stands on this coastal point and a light marks each side of the Bermagui Inlet which is navigable for small craft only.

The coast in the vicinity of the Bermagui Inlet consists of thick scrub and forest, and then breaks into a low sandy beach, backed by a swamp curving N to Murunna Point. Close W of the N part of Murunna Point is salty Walluga Lake.

Eden

The coast from the lake area to **Cape Dromedary** (36˚18'S., 150˚08'E.) consists of a sandy beach with good pasture and plenty of fresh water. Shoal water extends over 0.5 mile off the shore, 1.5 miles N of Murunna Point. Cape Dromedary lies about 5 miles E from the mountain of the same name. Mount Dromedary is the most remarkable mark on this part of the coast. In clear weather, the mariner will sight this double mountain from 60 miles. Its NW peak is 809m high, with the SE summit rising to 794m. Between this mountain and Cape Dromedary, Ajungagua Hill rises to 214m.

Caution.—A wreck lies about 3.2 miles E of Cape Dromedary.

Montague Island (Barunguba Island)(36˚15'S., 150˚14'E.) lies 3.8 miles ENE from Nugget Point. It is two islets, as a deep rocky chasm divides its center through which the sea breaks heavily with strong E winds. The island has been reported to give good radar returns up to 22 miles.

A reef of rocks, with depths of 9.1 to 16.4m, extends from the SW extremity of the island where the sea breaks frequently in heavy weather. Auginish Rock, with a depth of 5.5m, lies 1.5 miles S of Montague Island Light; and two more rocks, with depths of 4.6 and 4.9m, lie close together, about 2.5 miles S of the light. Care should be taken to avoid the area, as other dangers may exist.

A light is shown from the summit of Montague Island. The light is in radiotelephone communication with Norah Head Light at fixed intervals. Visual signals will be answered if seen, but no special watch is kept.

Anchorage.—Anchorage may be found for small vessels, with E and S winds, in a small bight on the W coast formed by the two parts of the island, but it can not be recommended for large vessels. Anchorage is prohibited within 100m of submarine cable laid across the Clyde River in close proximity of the bridge in position 35˚42.3'S, 150˚10.7'E.

When navigating this part of the coast, vessels bound N are recommended to keep inside Montague Island and about 2 miles off the mainland all the way N to avoid the S current usually found outside.

Caution.—Caution should be exercised to clear the dangerous wreck charted E of Cape Dromedary.

4.7 The coast to Wagonga Head is a succession of granite and ironstone points, all bordered with reefs, with sandy beaches in between. The promontory on the S side of the entrance to Wagonga Inlet is marked by a signal station where a vessel can communicate by International Code. The coast to Yellow Head, and farther N to Marka Point, continues with high points, reefs, and sandy beaches. A fire tower stands at about 2.5 miles WSW of Yellow Head.

Marka Point, 30m high, is fringed with rocks, and located about 0.5 mile N of Jamisons Point, the N entrance point of Lake Tarouga.

The coast to Tuross Inlet is formed by a low tongue of land. There is a sunken rock about 0.2 mile off the mouth of the inlet. A sandy beach, with scrubby land behind it, near Tuross Inlet at Coila Lagoon continues to **Binge-Binge Point** (36˚01'S., 150˚10'E.). From this point, the coast takes on a succession of small bays and rocky points curving around N to Mullinburra Point and on to Congar Point.

The sea always breaks on Black Rock with strong SE gales, and it breaks heavily on some patches of a ledge that extends N to Congar Point from Petro Head.

From Congar Point, the beach continues in a N direction to Yowaga Point and then to Moruya Head, the headland forming the S side of the entrance of the Moruya River. On the W point or inner S head of this peninsula, there is a signal station where signals are made by International Code or Morse Code by flashing lamp. From the NW side of the entrance to the Moruya River, the coast consists of a sandy beach, backed by dunes to a head with reefs projecting from it.

Broulee Island (35˚52'S., 150˚11'E.) lies about 0.3 mile E of the coast and is enclosed by a reef of dry and covered rocks. The N coast of the island forms a bay which provides good anchorage for small vessels as indicated on the chart.

Burrewarra Point is a rocky headland, 57m high, closely fringed by a reef, and projects about 0.5 mile off the coastline. The point has been reported to give good radar returns up to 19 miles. A light is shown from Burrewarra Point.

4.8 Batemans Bay (35˚44'S., 150˚12'E.) (World Port Index No. 53750) is entered between South Head and North Head and runs in a NW direction from the Tollgate Islets to the bar of the Clyde River.

Depths in Batemans Bay decrease gradually from 16m at the entrance to 7m at a point 0.4 mile off Square Head, then shoaling to the Clyde River.

The SW shoreline of Batemans Bay is made up a series of rocky points and small sandy bays to Observation Head. The remainder of this part of the coast consists of a series of reefs as it meets the SW entrance point of the Clyde River.

North Head, the N entrance point of Batemans Bay, rises to 38m and is surrounded by rocks. Between North Head and Three Islet Point, there is a sandy beach. Other bays appear W of Three Islet Point with the projection of headlands between Three Islet Point and Reef Point, where depths do not exceed 7.3m.

Tides—Currents.—The spring rises at Batemans Bay varies from 1.4 to 1.8m.

Anchorage.—The recommended anchorage for large vessels in Batemans Bay is in 9.1 to 10.9m, sand bottom, about 0.3 mile WSW of **Acheron Ledge** (35˚44'S., 150˚15'E.). Deep-draft vessels anchor, in 16.5m, about 2 miles N of South Head. The mariner should be cautioned that a heavy ground swell may be experienced at the anchorages, and the sea will break in the bay under the influence of strong E of SE winds.

Caution.—The **Tollgate Islands** (35˚45'S., 150˚16'E.) are connected by a ledge of rocks and reefs extending nearly 0.5 mile NE and SE, closely fringed with rocks, and having depths of 11 to 16m about 0.1 mile outside these islands. From the Tollgate Islands, a ledge of rocks with depths of 3.7 to 4.6m extends NW, N, and NE for about 0.2 mile. The bottom is rocky, with depths of 5.5 to 9m, deepening suddenly to 16.5 to 18.3m, sandy bottom.

Trennant Rock, with a depth of 4m, lies 0.3 mile S of the Tollgate Islands.

Black Rock, about 1 mile SE of Trennant Rock, is 10m high and has depths of 11 to 18m surrounding it.

4.9 The coast N from North Head to Point Upright consists of a series of small points and sandy beaches. Point Upright becomes the termination of a ridge of hills extending from the W. The land recedes nearly 1 mile at the point, forming a bay about 2 miles long, concluding in a sandy beach. Close above Point Upright, at Grasshopper Islet, there is a ledge of sunken rocks on which the sea breaks heavily. The coast forms a bay N of Grasshopper Islet at 1.5 miles. About 0.5 mile W of the N entrance point of this bay is Pebbly Beach, off which small vessels can find shelter except with S and SE winds, but the holding ground is very poor, being sand over rock.

The coast curves N and NNE to a point at the base of Mount O'Hara, which rises close behind to a height of 338m.The **Dawson Islets** (35˚35'S., 150˚21'E.), two in number and 3m high, lie on the reef extending about 0.5 mile E of this last mentioned point.

O'Hara Head is 2.2 miles NE from the Dawson Islets and O'Hara Island, 4.5m high, lies near the shore at 0.5 mile N of Dawson Islets. Robbie Shoal, with a depth of 5.5m, lies about 0.6 mile E of O'Hara Head. The 20m curve is seaward of the shoal.

Brush Island (35˚32'S., 150˚25'E.), lying 0.1 mile off Murramarang Point (First Sandy Point), is 43m high and about 0.5 mile across. A light is shown from the summit of Brush Island.

About 0.4 mile NE from the E extremity of Brush Island is a dangerous rock which breaks only with a heavy swell; in the channel between the island and the main-land there is an above-water rock. Vessels bound N and keep-ing inshore to avoid the current should be careful when passing this island and give it a berth of more than 1 mile.

Anchorage.—Anchorage, sheltered from S winds, may be obtained off the NW side of Brush Island, in about 11m, sandy bottom. The anchorage is made when O'Hara Head is in line with Murramarang Point and the N end of Brush Island bears 100˚.

Bawley Point is located near the above anchorage and is the name of a small township. From this point, the coast extends NW in and out to the narrow mouth of Muroo Lake.

Stokes Island, NE of Muroo Lake, is surrounded by reefs apparently connected with the shore to the N of the island. Crampton Islet is located on a reef which extends across the mouth of a narrow inlet trending N about 2 miles, and separated from the sea by a narrow tongue of land. Between Crampton Islet and Lagoon Head NNE, there is a sandy beach nearly 0.5 mile long. The coast then becomes rocky with a bordering reef; these characteristics continue to the narrow opening of Burril Lake NW. A sandy beach extends NE from this lagoon to a prominent rocky point off which a narrow ledge of rocks projects 0.7 mile SE. The sea breaks all the way between the outer rock and the shore. From this ledge, rocky points extend NE to Warden Head, which has a reef projecting nearly 0.5 mile from its SE extremity.

Warden Head Light (35˚22'S., 150˚30'E.) is shown from a circular white lighthouse.

Sullivan Reef lies nearly across the fairway of the entrance to Ulladulla Harbor, forming a natural breakwater, and tends to break the heavy sea rolling in toward the artificial breakwater at the head of the harbor during E winds.

4.10 Ulladulla Harbor (35˚22'S., 150˚30'E.) (World Port Index No. 53730) is 0.4 mile wide NW and SE between the rocky shelf which projects 100m from Warden Head and the detached rocks which extend nearly the same distance from North Head. It is a fishing harbor for vessels up to 45m length, with a draft of 3.6m. The shores are fringed with rocks which extend about 0.1 mile offshore on the S side, but at its head there is a sandy beach.

The entrance is marked by two breakwaters, where lights mark their seaward extremities. The width between the breakwater heads is 85m.

Tides—Currents.—The tidal rise at Ulladulla Harbor is 1.2m at MHHW, and 1.1m at MLHW.

Depths—Limitations.—In mid-channel between the entrance heads, there are depths of about 10m, sand, which shoal gradually toward the breakwater entrance. Depths of 3.6 to 5.5m extend up to 0.2 mile N from the S shore E of the breakwater head.

Range lights shown from on the beach at the head of the bay lead into Ulladulla Harbor.

Pilotage.—An unlicensed pilot, with extensive local knowledge, employed by the Marine Services Board of New South Wales is reported to be available if required. The harbor is not easy to access and caution is advised when making the approach, as the heads are difficult to distinguish.

Directions.—The best mark for making Ulladulla Harbor is the Pigeon House, a prominent isolated mountain, 730m high, bearing 272˚, which leads to the entrance of the harbor; when within 5 to 6 miles, the white houses at the head of the harbor and the sandy beach under them will be distinguished. When abreast of North Head, the depths about 9m, Pigeon House will be lost from sight and the leading marks will lead to abreast of the inner harbor entrance.

4.11 Between the north head of Ulladulla Harbor and the entrance of Narrawallee Inlet (Nurrawhirra Inlet), about 3 miles N, the coast divides into two sandy indentations, with Bannister Point midway between the two. Care must be taken to avoid the rock, with a depth of 1m at LW, lying N of the point.

Preservation Rock lies on a reef about 0.2 mile E of the S entrance of Narrawallee Inlet. The N half of this bay, where the inlet indents, is a sandy beach; the coast trending NE meets a low point forming the SE side of the opening of Conjola Lake, close in front of which is Green Island. It appears that Green Island is fringed by a reef connected with the bar across the mouth of Conjola Lake behind it.

Red Point, NE of Green Island, is fringed with rocks and projects 0.7 mile E of the coastline. Above Red Point, the narrow mouth of Swan Lake indents the coast and there is a bay, 1 mile deep, the irregular shore of which is intersected by two small streams. From the entrance to Swan Lake, a sandy beach curves ENE to the W point of Wreck Bay, the point of which forms the S side of the narrow mouth of Sussex Inlet.

This inlet, following a N direction, travels into St. Georges Basin.

Overhead and submarine cables and pipes cross Sussex Inlet at various points and are usually indicated by warning notices on the shore. Caution should be exercised at all times while navigating or anchoring in the vicinity of these crossings.

4.12 Wreck Bay (35˚12'S., 150˚42'E.), between Sussex Inlet and St. George Head (35˚12'S., 150˚42'E.), is 5 miles in length and recedes 2.3 miles in the E part. The N shore from the mouth of Sussex Inlet consists of a sandy beach, fronted by rocks, and backed by sand dunes for about 3.5 miles. This part of the coast has depths of less than 11m extending out to about 0.5 mile.

Anchorage.—Anchorage in Wreck Bay is restricted to the summer season and the best anchorage then is in 13m, with the S extreme of St. Georges Head bearing 145˚ and the center of three rocky points (points of three small bays) in the NE corner of the bay bearing 045˚. This anchorage also insures immediate exit should a S squall come up.

Caution.—Vessels are cautioned of the dangers of navigating near this stretch of coast during bad weather with E or SE winds, as there is a good possibility of being set into Wreck Bay. To insure a vessel's safety at night, the mariner should keep Perpendicular Point Light in sight and ensure a position well to the E of Wreck Bay.

Three areas off Wreck Bay, bounded in each case by a circle with a radius of 0.5 mile, have been designated as dangerous areas, and anchoring, trawling, or fishing is dangerous in their vicinity. The centers of the circles lie bearing 207˚, 3.5 miles, bearing 232˚, 5.6 miles, and bearing 270˚, 4.4 miles from St. Georges Head.

Between the headlands of St. George Head and Cape St. George, there is a small exposed bay; the cape is surrounded with numerous sunken rocks.

A cliffy coast trends N from Cape St. George to Governor Head. Inclusive in this stretch of coast is a measured mile, the start and finish of which is best seen on the chart.

4.13 Jervis Bay (35˚07'S., 150˚48'E.) (World Port Index No. 53710) is entered between Bowen Island, which lies close N of Governor Head, and Point Perpendicular.

Tides—Currents.—The tidal rise at Jervis Bay is 1.5m at MHHW, and 1.2m at MLHW.

Depths—Limitations.—Within its entrance, Jervis Bay extends 8 miles N and S, and from 3 to 5.5 miles E and W, with regular depths gradually decreasing from 36m in the entrance to 16 to 11m within 0.5 mile of the greater portion of the shores of the bay.

Middle Ground, consisting of a rocky patch about 100m across, with a depth of 14m, lies about 0.7 mile N from the N point of Bowen Island in the fairway of the entrance to Jervis Bay.

The entire bay has been designated as Naval Waters, the limits of which are given below:

1. On the E—By a line drawn from Longnose Point to the N end of Bowen Island.
2. On the S, W, and N—By the HW line of Jervis Bay.

The following areas are reserved for merchant shipping:

1. South part of the bay—That part of Darling Road enclosed by meridian of 150˚46'00"E and the parallel of 35˚06'50"S.
2. West part of the bay—Waters enclosed by the meridian of 150˚43'30"E.

Aspect.—Bowen Island, rising to 40m, is fronted by a formation of high vertical cliffs, from which the land slopes gradually and irregularly towards the Jervis Bay.

Darling Road is located in bight in the S part of Jervis Bay between Governor Head and Captain Point. In the bight a sandy bay curves S and W to a low point fringed with a reef close W of Governor Head, and continuing on to a conspicuous white cliffy projection with an opening in it, known as Hole-in-the-Wall.

Captain Point is identified by red-tiled buildings; from this point a breakwater runs out in a NW direction forming a small boat harbor, within which is a small jetty.

There is a naval college situated at Captain Point.

Plantation Point (Lamb Point), about 3 miles N of Captain Point, has some sunken rocks close-to, one of which breaks 0.2 mile E of the point and a 5.5m rocky patch, which breaks occasionally at 0.5 mile NE from it. Vessels should not pass between this patch and the point; inside the 4m curve the ground is foul.

The W bight of Jervis Bay, from Plantation Point to Callala Point (Flora Point), forms a bay, the S part of this coast fringed with rocks and the W part, sandy beach. Dent Rock, a pinnacle with depths of 0.6m, lies about 0.1 mile offshore and 0.8 mile WNW of Plantation Point. An obstruction is charted 0.1 mile NE. At a distance of 1.5 miles NW of Plantation Point, the mouth of Moona Creek enters the bay, from which a ledge of sunken rocks extends 0.1 mile, with shoal water about 0.5 mile from it.

Currambene Creek enters the bay N of Moona Creek, with the village of Huskisson just inside it. Shoal water extends 0.5 mile off these creeks. The entrance to Currambene Creek is marked by leading beacons, which lead over the 1.2m bar. Callala Point and the shore for 0.5 mile to the W and 0.2 mile N is bordered by rocks, with a depth of about 5.5m.

Hare Bay, the N bight of Jervis Bay, is divided into two bights by Red Point. Seaward of the 5.5m patch, nearly 0.5 mile off **Flora Point** (35˚00'S., 150˚43'E.) and the rocks off Green Point, the bay has depths of 7.5 to 11m.

Anchorage.—Montagu Road, on the E side of Jervis Bay, provides secure anchorage, in depths of 11 to 12.8m, hard sand, about 0.9 mile S of Montagu Point. This is the limit at which a large vessel should anchor off the shore, as with a heavy S sea rolling in, the vessel would be exposed to its full effect.

The shore between Longnose Point and Dart Point forms an irregular bight, with a reef projecting nearly 0.3 mile from Longnose Point and with Bumbora Rock, about 100m in extent with a depth of 3.6m, on which the sea breaks in bad weather, lying 0.3 mile S from the point. Between the reef off Longnose Point and Bumbora Rock, there is a depth of 11m, with 20.3m close to the rock.

Caution.—Naval gunnery, bomb, mine, and torpedo practices, along with submarine exercise,s may be carried out in areas within and adjacent to Jervis Bay.

4.14 **Point Perpendicular** (35˚06'S., 150˚49'E.) is a conspicuous feature of the coast, standing on a bold, cliffy headland without trees or scrub. This cliffy headland extends NE to Crocodile Head (35˚05'S., 150˚51'E.), 110m high, and then to a small bight in the coast, where there are three small islands known as the Drum and Drumsticks Islands. From the N point of this bight, a continuation of a line of cliffs reaches to Beecroft Head, the E extremity of Crookhaven Bight. There are depths of about 55m within 1 mile of the shore between Point Perpendicular and Beecroft Head.

Kiama

4.15 Sir John Young Banks, consisting of two rocky patches lying NE of Beecroft Head, should be given a wide berth as the current, when it is strong, causes heavy overfalls, even during smooth water.

There is a channel between the SW end of Young Banks and Beecroft Head, with depths of 20 to 36m, but in the vicinity of these banks, as previously stated, strong currents cause a rip, which even in smooth water has been observed to break. Point Perpendicular Light, bearing about 232˚ and open of Crocodile Head or Point Perpendicular Light, leads SE of Young Banks and the 642m summit of the Cambewarra range bearing 292˚, open S of **Coolangatta Mount** (34˚51'S., 150˚43'E.), 301m high, an outstanding isolated conical hill on the low land NW of the entrance to the Shoalhaven River, leads about 1 mile N of the NE patch. In addition to serving as a mark for clearing Sir John Young Banks, Mount Coolangatta, which is the highest land near the coast, is also a good guide when entering Shoalhaven Bight.

Crookhaven Bight (35˚00'S., 150˚49'E.) provides good anchorage in Crookhaven Bight, after rounding the projecting low rocky N point and avoiding a rock with a depth of 0.6m, about 0.1 mile off the point and the shoal depth of 8.5m further out. The anchorage is in 11m, sandy bottom, with the N extremity of Beecroft Head bearing 078˚, distant 0.5 mile.

Vessels should, during the prevalence of bad weather, keep outside Shoalhaven Bight, which extends from Beecroft Head to Black Head. The strong outgoing tidal currents from the Crookhaven River and the Shoalhaven River, setting across the S The ocean current, cause heavy rips in Shoalhaven Bight.

Shoalhaven River, between which and Sydney there is communication by vessel three times a week, are separated from each other by Comerong Island. With the exception of a hillock on the N point of Comerong, this island appears to be low and flat, with its S coast mostly lined with mangroves covered at high tides.

A sandy beach extends from the Northern Shoalhaven River, curving NNE to a small double creek at about 0.5 mile ESE to Black Point (34˚47'S., 150˚51'E.) and Black Rock. From Black Point to the S point of Geering Bay (Gerringong Bay), the coast indents with a series of small bights and projecting reefs. Geering Bay consists of a sandy beach at the N end, but reefs extend out in the S portion. The bay is an open roadstead and it is not recommended as an anchorage.

From Red Cliff, a small inlet at Geering Bay, the coast N to the SE entrance point of Kiama Harbor is marked with small bights, separated by rocky points, some of which have ledges of sunken rocks projecting from them.

4.16 **Kiama Harbor** (34˚40'S., 150˚53'E.) (World Port Index No. 53700), a small port available only for vessels of light draft, is sheltered by a peninsula. Any swell running off the coast rounds the point and renders this harbor untenable.

The basin is about 140m long and 75m wide, with about 360m of berthing space available. Alongside depths range from 3.6 to 4.2m.

Pilotage.—There is no pilot or tug available.

The coast from Kiama curves irregularly N to a projecting head, and then NNW to the Minamurra River, where close off is Stack Islet, an island surrounded by a reef having a depth of 27m, gravel bottom, 0.5 mile SE of it, and a 18m patch 0.7 mile ENE. Other reefs extend into the bay to the NW. From the Minnamurra River, two small sandy bays extend 1.2 miles NE to a line of cliffs running to Bass Point, which is 28m high.

The coastline to Shell Harbor from Bass Point is low in profile. There is a narrow entrance to this small cove, which is enclosed by an artificial breakwater. Range lights lead into this harbor, which is fit for small craft only.

From the N point of Shell Harbor, the low coast makes into two exposed bays to Windang Island (34˚33'S., 150˚53'E.), where immediately behind this island is the shoal entrance to Lake Illawarra. The entrance is spanned by a wood bridge, with a vertical clearance of only 3.7m.

From the entrance to Lake Illawarra, the coast formed by Perkins Beach turning NE is backed with sand hills, 15 to 18m high and is cliffy, culminating in a point composed of four hillocks, which present the form of a saddle, dull red in color. This coastal feature, known as Red Point, may also be readily identifies by Mount Kembla, a prominent hill rising to 534m, 6.5 miles NW.

Caution.—There are two groups of low rocky islets in the approach to Port Kembla, the entrance to which lies 1.7 miles N of Red Point. These groups are known collectively as the Fine Islands and are best seen on the chart.

Port Kembla (34˚28'S., 150˚55'E.)

World Port Index No. 53690

4.17 Port Kembla, an artificial harbor situated about 1 mile N of Red Point, provides good radar returns up to 19 miles. With the construction of the N and E breakwaters and an inner harbor, Port Kembla forms a commodious harbor with accommodations for large ocean-going vessels. It is a port of entry and the third largest port in the state.

Winds—Weather.—Coastal winds are complicated by local topography and the land-sea breeze effect. In general, there is a tendency toward S and E winds in summer, with N and NW winds becoming frequent in the winter.

The port is well-sheltered from all winds, except those between the N and NNW. During the month of July and August, prevailing winds are from NE to SW and W

Tides—Currents.—The tidal rise at Port Kembla is 1.5m at MHHW and 1.2m at MLHW.

Port Kembla Port Corporation

http://www.kemblaport.com.au

Depths—Limitations.—The Inner Harbor and the Outer Harbor, although entered from the SW, are aligned on a NW-SE axis. The Inner Harbor terminates into two extensions known as Eastern Basin and Western Basin. The entrance channel to the Outer Harbor has a depth of 16.7m and provides access to the berths there. The channel transiting the Outer Harbor for the Iinner Harbor is dredged to a depth of 15.7m.

Situated in the Outer Harbor are the Inflammable Liquids Berth and No. 3 Jetty, No. 4 Jetty, and No. 6 Jetty. The Bulk Liquids Berth is situated at No. 4 Jetty, just W of the root of East Breakwater. The Inflammable Liquids berth lies on the S side of North Breakwater. This berth is also referred to as the Oil Berth.

The Inner Harbor, dredged into the flat coastal land behind the outer harbor, sports facilities and deep-water berths for the handling of bulk commodities, and ro-ro traffic. The Product and Discharge Berths are also referred to as the BHP Berths. The Eastern Basin has grain, a ro-ro, and bulk coal berths.

The approach channels to the new multi-purpose berth and coal loading berth are dredged to 15.3m.

The largest vessel to entered the port was 232,000 dwt. The port allows vessels with a maximum length of 295m. However, vessels with a length between 290 and 295m, or a vessel with a beam width that exceeds 45m, will require prior approval from the harbormaster.

Outbound vessels, with a length exceeding 265m and a draft of less than 12m, will also require an approval from the harbormaster.

Aspect.—There are several chimneys and buildings which provide for good landmarks. A chimney, with an elevation of 223m and illuminated at night, is situated about 1 mile S of the N breakwater. There is a large conspicuous waterfall, near Flagstaff Hill, located 2 miles W of the town. Close S of the root of the East Breakwater is a signal station, situated on the roof of a conspicuous building, which serves as a good landmark.

The channel is marked by two sets of ranges. Caution is necessary as the rear marker, an orange daymark appearing to be on top of a red roof just to the right of a large satellite dish, of the 213 range has been reported (1998) to be difficult to distinguish.

Pilotage.—Pilotage is compulsory. The pilot boards, as follows:

1. Outer harbor boarding area—4.4 miles NE of the breakwater entrance. For vessels with a length of 250m and over.
2. Inner harbor boarding area—3.2 miles NE of the breakwater entrance. For vessels with a length of less than 250m.

Vessels should signal their ETA to Port Kembla Harbor on VHF channel 16 at least 4 hours in advance, confirming the ETA 2 hours before arrival. Vessels should utilize VHF channel 11 to advise their ETA to Port Kembla Signal Station when within 5 miles of the entrance. The center at the signal station is in continuous contact with the pilot, the pilot tender, tugs, and launches.

Port Kembla—Berthing Information

Berth	Length	Depth alongside	Remarks
Outer Harbor			
No. 4 Jetty (East)	183m	4.9 to 9.1m	Sulfuric acid and ammonia.
No. 4 Jetty (West)	228m	4.6 to 11.8m	Bulk liquids. Maximum vessel length of 180m. Maximum vessel draft of 11.2m.
No. 3 Jetty	290m	3.8 to 11.8m	
No. 6 Jetty Gateway	298m	7.3 to 9.8m	Bulk and breakbulk cargo. Maximum vessel length of 220m.
Inflammable Liquids	183m	10.7m	Maximum vessel length of 232m.
Inner Harbor			
No. 1 Products Wharf	192m	11m	BHP Steelworks Berth.
No. 1 Discharge Wharf	278m	12.8m	BHP Steelworks Berth.
No. 2 Discharge Wharf	310m	15.7m	BHP Steelworks Berth.
Ro-ro Berth	183m	11.0m	Bulk steel. Located in Western Basin. Vessels berth starboard side-to.
No. 2 Product Wharf	210m	12.2m	BHP Steelworks Berth.
Mult-Purpose Berth	315m	16.2m	General cargo, repair, and tie-up.
Grain Berth	290m	16.2m	Maximum vessel length of 315m. Maximum air draft of 17.0m.

Port Kembla—Berthing Information			
Berth	**Length**	**Depth alongside**	**Remarks**
Ro-ro Berth	170m	9.0m	Located in Eastern Basin.
Bulk Coal Berth	315m	16.2m	Maximum air draft of 22.4m.
Old Coal Wharf	285m	11.6m	Maximum air draft of 17.4m.

Regulations.—The port limits of Port Kembla include a circle, with a radius of 2.5 miles, centered on East Breakwater Light.

Vessels are prohibited from passing in the harbor entrance. Mariners are cautioned that outbound vessels have the right-of-way within the port limits.

Vessels are required to maintain an underkeel clearance of 10 per cent of the available water depth at all times.

Signals.—Signals are displayed from the signal station. Storm signals should be watched for, and upon the hoisting of the flag signal XT (heavy weather approaching) and at night two red lights are displayed vertically, when vessels must be ready to leave their berth with 1 hour's notice.

When the port is closed, the code flag UM is hoisted during the day; at night, three red lights are displayed vertically.

Anchorage.—Anchorage is available, in 15 to 24m, well clear of the main leads, between Flagstaff Point and North Breakwater.

Anchorage is prohibited within the harbor, except to obtain pratique.

Foul ground, with a radius of 0.4 mile, is centered in position 34˚24.8'S, 150˚57.2'E; anchorage is not recommended in this area during strong SE winds due to poor holding ground and the existence of old anchor chains

It has been reported that good anchorage can also be obtained outside the harbor, 6 miles NE of Flagstaff Point Light.

Anchoring is prohibited in the approach to Port Kembla.

Caution.—When making the port, care must be taken to reduce speed early, especially at night, as the lights of vessels at anchor are difficult to distinguish against the many powerful lights of the numerous factories, etc. Under no circumstances should a vessel be anchored in such a position that it will be across the line of the main leads.

Vessels are advised to pass at least 1 mile E of **Bass Islet** (34˚28'S., 150˚57'E.), if approaching from the S, and follow the ranges into port.

A waverider buoy has been established off East Breakwater.

4.18 The coast forms a slight indentation N to Flagstaff Point (formerly Wollongong Head) from the Port of Kembla. The 200m curve, from 15 miles E of Black Point, extends N to about 17 miles off Flagstaff Point, about 20 miles E of Kiama Head, where there are depths of 510m, fine, dark sand bottom.

Flagstaff Point (34˚25'S., 150˚55'E.) is a rocky peninsula projecting 0.2 mile E from the coast. The N side of the peninsula is fronted by a sea wall; on the summit of the headland stands a signal station and lighthouse. The head has been reported to give good radar returns up to 17 miles.

Wollongong Harbor (32˚45'S., 150˚54'E.) (World Port Index No. 53680) lies about 3 miles N of Port Kembla and is used by smaller vessels only. Depths in the fairway to the port range from 3.6 to 6m, and to less than 3m at the docks. Range lights mark the entrance channel, which is generally free of dangers except for Para Reef, a shoal on which the sea breaks. Para Reef lies about 0.3 mile N of the W breakwater head and should be watched for when approaching the port.

Pilotage is not available, but the Port Kembla signal station will assist vessels as necessary; the signal station will bear no responsibility for the actions of vessels assisted in this manner.

Caution.—In bad weather it is impossible to enter or leave Wollongong Harbor.

From the W side of the entrance to Wollongong Harbor, a sandy beach extends N to **Towradgi Point** (34˚23'S., 150˚55'E.), whose conformation is that of blue stone boulders and a rocky spit extending from it. From Para Creek behind the point, a coast range of low sand hills extends close behind the stretch of beach to Towradgi Point.

4.19 **Bellambi Point** (34˚22'S., 150˚56'E.) is low and consists of rock with a surface of sand. Bellambi Reef, which partially dries at LW and always breaks, extends nearly ESE 0.5 mile from Bellambi Point.

Flagstaff Hill (34˚28'S., 150˚52'E.), appearing as a long double summit hill, barren at each end and thickly wooded in the center, and in line with the center of Flagstaff Point bearing 218˚, leads 0.5 mile E of the reef, in a depth of 14m. Wollongong Head Light shows red over Bellambi Reef. From 150m N to 0.3 mile NW of Bellambi Point, there are depths of 5.5 to 10.9m, from which depths decrease somewhat irregularly to 3.8m, to within 100m of the shore in a little bight extending 0.3 mile W from Bellambi Point, and forming the sea frontage of Bellambi village.

From Flat Rock, the NW point of Bellambi Bay, the coast extends N to Bulli Point (34˚20'S., 150˚57'E.), which has a reef of rocks, dry at LW, projecting from it. South from the point about 1 mile stands the Bulli Coal Station. This N suburb of Wollongong is a mining town. There is a jetty at Bulli and a light is shown from the flagstaff on the jetty.

From Bulli Point, the coast which is low, works N to Brickyard Point. At Brickyard Point, the coast becomes faced with cliffs to the village of Coal Cliff (34˚15'S., 150˚59'E.). These cliffs form the NE extremity of the Crown Mountains. A mark useful to the mariner on this part of the coast is the conspicuous radio tower standing about 1.5 miles SW of Coal Cliff.

A sounding of 18.3m, with deep water all around, was obtained about 2.5 miles E of Coal Cliff.

The coast from Stanfield Bay, the bay being merely the N of two small bights lying between Coal Cliff and a point 1.5 miles N, consists of a line of cliffs, with the exception of a beach lying nearly midway between Coal Cliff and Wattamolla.

Wattamolla serves as a boat harbor. with shelter from all winds except those from the S and E.

Ranges of hills extend close along the coast from Bellambi to Port Hacking Point, and diminish in elevation at Port Hacking Point. Southwest of the point, prominent Jibbon Hillock (Table Hillock) rises to 90m.

From Wattamolla, the coast NE is irregular in and out to **Port Hacking Point** (34˚05'S., 151˚10'E.), and is predominantly fringed with dry and sunken rocks not too far offshore. Hacking Point protects Port Hacking from S and SE gales.

Jibbon Bumbora is a detached patch of rocks lying about 0.5 mile to the SE of Hacking Point. The sea will always break on these rocks, which have depths of 27m 0.5 mile to the E and 13m close to the N of them.

4.20 Port Hacking (34˚04'S., 151˚09'E.) is entered between Hacking Point and Glaisher Point, and is 0.5 mile wide, with depths of 5.5 to 7.3m between the ledges of rocks which project from both points of the entrance. From Hacking Point, the port extends nearly 1 mile in a WSW direction to a bar with a depth of 0.9 to 1.8m, stretching across an opening between two rocky points lying N and S about 0.4 mile from each other, and forming an inner entrance, leading from Port Hacking into the shallow, but extensive inlet to the W.

The S side of Port Hacking contains two small sandy bights consisting of Jibbon Beach and Bundeena Bay.

From Glacier Point, the N shore tends SW for 0.5 mile to Hungry Point, the S end of a Hilly Promontory. Depths in the outer portion of the port range from 11 to 20m; but from a depth of 9m in the entrance channel, the inner portion shoals rapidly.

Overhead and submarine cables span Port Hacking at several places, which are best seen on the chart.

Anchorage.—The best anchorage is in 7m, sand, with Port Hacking Point bearing E, and the two points, lying 0.2 to 0.7 mile N of Gaisher Point, in line bearing N.

A light is shown on Burraneer Point; three beacons NE of the point have been fitted with lights.

Glaisher Point Light is shown from a white mast on the point.

4.21 Bate Bay (34˚03'S., 151˚11'E.), an exposed bight of no value as an anchorage, is entered between Glaisher Point and Potter Point, the S extremity of a peninsula which forms the S side of Botany Bay. The W shore of Bate Bay winds irregularly nearly 1 mile N from Glaisher Point, and is cliffy to a point fringed by a reef on the NW side of which is the S extremity of Curranulla Beach.

There are depths of 18.3m in the middle of the entrance of Bate Bay, and 16.5m at a distance of 0.8 mile offshore; abreast of it, there are irregular depths of 12.8 to 20.1m.

Osborn Shoal, with a depth of 8.7m, lies near the center of Bate Bay.

A cliffy coast extends to Cape Baily from Potter Point, where a more elevated line of cliffs extends to Cape Solander. A sand hill is prominent N of Cape Baily as it stands over the cliffs between Capes Baily and Solander. There is a light shown from Cape Baily, and at about 0.7 mile W of Cape Solander, an oil refinery gives off two conspicuous gas flares. There are also a number of chimneys and towers in this refinery complex.

Caution.—Masters and others responsible for their vessels are required, when passing the entrance to Botany Bay and not intending to enter, to keep at least 1 mile to the E of an imaginary line drawn between Cape Banks and Cape Baily.

Botany Bay (34˚00'S., 151˚14'E.)

World Port Index No. 53655

4.22 Botany Bay (Port Botany) and Kurnell lie 12 miles S of the entrance to Port Jackson. Port Botany, on the N side of the bay, has been developed as a major port complex. On the N side of the bay there are berths to serve the oil industry at Kurnell.

Winds—Weather

In Botany Bay, the sea breeze in summer and the land breeze in the winter months are predominant during settled weather. The "Southerly Buster" of short duration and reaching gale force in bursts is an important feature in the summer months. In winter and early spring, Botany Bay will experience strong W winds. The bay is also exposed to SE swells and rather rough conditions may be raised by strong winds from any quarter.

Visibility is generally good, but fog and mist sometimes occur and occasionally dust or smoke may impair the field of view.

Sudden changes in sea and weather conditions should put the mariner on the alert, should it be necessary to vacate the port at short notice.

Tides—Currents

The tidal rise at Botany Bay is 1.4m at MHHW, and 1.1m at MLHW. The currents set in and out of the entrance at the rate of 1.5 knots.

Depths—Limitations

The channel to the swinging basin and berths at Kurnell has a minimum depth of 12.2m, sandy bottom. The channel to the Port Botany area is 213m wide, with a minimum depth of 15m. The swinging basin is dredged to 14.6m.

Bulk Liquids Berth, a T-head jetty situated near the entrance to Brotherson Dock, has a piled approach roadway and pipe support structure with mooring and berthing dolphins. The dDepth at the berth is 18.3m and will accommodate vessels 230m long, up to 90,000 dwt; a maximum draft of 14m is allowed. Bulk liquid chemical cargoes are piped to nearby industry and to storage tanks in an adjacent tank farm area.

Brotherson Dock consists of North Terminal and South Terminal, both of which offer three berths, with a maximum dredged depth of 14.3m.

Kurnell Oil Installations, on the S side of the bay, has a jetty with two berths (Kurnell No. 1 and Kurnell No. 2) and a multi-buoy mooring berth (Kurnell No. 3). Kurnell No. 1 has a length of 183m, with an alongside depth of 9.8m; the maximum permissible length of the vessel is 183m. Kurnell No. 2 has a

Courtesy of Sydney Ports Handbook

Botany Bay from N

length of 200m, with an alongside depth of 11.8m; the maximum permissible length of the vessel is limited to 198m. Kurnell No. 3 is a multi-buoy mooring, with a submarine pipeline and a depth of 13.2m alongside the berth; the maximum length of the vessel that can be accommodated is 238m.

Aspect

Botany Bay is entered between Cape Solander and Cape Bank; from its entrance, the bay extends about 4 miles W. Its shores are generally low and considerably built over. Botany Bay is Australia's premier oil port. Residential and commercial buildings ring the bay. About 0.5 mile NW of La Perouse Point, Bunnerong Electric Powerhouse, with its extensive buildings and coal yards, is situated along the foreshore close N of Bumbora Point. Two shallow sandy coves, from which several submarine pipelines extend, indent the shore between La Peronse Monument and Bumbora Point.

A conspicuous radar scanner is situated about 4 miles NW of Henry Head and there are obstruction lights on the scanner.

The S shore of Botany Bay from **Inscription Point** (34˚00'S., 151˚13'E.) sweeps around SW to Kurnell, taking in a sandy beach to Bonna Point. The S shore of the bay is formed by the N end of a low flat peninsula, named Towra Point, extending from the S and separating a shallow lagoon (Weeny Bay) on its E side from the estuary of the Georges River on the W.

Pilotage

Pilotage is compulsory for Botany Bay and pilots should be ordered through the ships agent in advance. Pilot boards in the vicinity of 34˚03'S, 151˚19'E, 4 miles E of Cape Solander. Vessels should radio their ETA at least 4 hours in advance, confirming 2 hours before arrival. Vessels may not proceed W of the pilot boarding ground without the permission of the harbormaster. The pilot will remain onboard vessels berthed at Kurnell No. 3.

Sydney Pilot Service

http://www.sydneypilotservice.com.au

Regulations

The port limits of Botany Bay are defined by the circumference of a circle about 4 miles in radius, centered on Endeavor Light (34˚00'S., 151˚14'E.). The harbormaster exercises control over the movements of vessels in shore of this line and has established traffic regulations for entry into the port. Foul ground, with a radius of 0.4 mile, is centered in position

34˚24.8'S, 150˚57.2'E; anchorage is not recommended in this area during strong SE winds due to poor holding ground and the existence of old anchor chains.

Inbound vessels must not enter Area B or Area D; outbound vessels must not enter Area A or Area C. All areas are best seen on the chart.

Quarantine.—The quarantine line for the port is drawn from the tip of **Molineux Point** (33˚59'S., 151˚13'E.) 210˚ to the NW corner of the quarantine area N of Kurnell, then parallel to the W boundary of this area to its SW corner; then 151˚ to the pier at Kurnell. Two quarantine areas have also been established in Botany Bay, the first of which has been identified. The second is centered on the SPM.

Traffic Regulations.—Anchorage is prohibited within the limits of the port.

Signals

Radio communication may be established on VHF channel 12 with Sydney Maritime for vessels more than 5 miles from Botany Bay. For vessels within 5 miles of the port, Harbor Control may be contacted on VHF channel 13.

Anchorage

There are no recommended anchorages off the coast for vessels waiting to enter Botany Bay. Anchorage is prohibited within the limits of the port.

Directions

A directional light, situated on the end of the runway extension, leads into the bay. This directional light leads clear of all dangers to the quarantine anchorage. Range beacons WNW of the head of Kurnell Oil Pier lead into the dredged tanker terminal anchorage and turning basin. Also, ranges in the bay lead from the entrance to the dredged area to the Kurnell Oil Pier and for the approach to the Brotherson Dock Complex.

Cape Banks to Sydney

4.23 From Cape Banks, the coast, the N part of which is cliffy, extends to Long Bay whose entrance is about 0.5 mile wide. There are sunken rocks lying a short distance NE of the head of the bay. Visible on this part of the coast, in addition to the Bunnerong Power Station chimneys mentioned earlier, is the Long Bay Penal Establishment and the Prince Henry Hospital, the latter at the head of Little Bay 0.5 mile off Long Bay.

From the projecting NE head of Long Bay, the cliffy coast extends to Marouba Bay, indenting the coast for about 0.5 mile. Between the cliffy headland which forms the N point of Marouba Bay and a projecting point 1.8 miles to the N of it is Coogee Bay.

An aeronautical lighted beacon is occasionally shown from a tower about 4 miles WSW of Coogee Bay. An aeronautical radiobeacon transmits from a radio tower about 1 mile W of the bay.

From the N point of Coogee Bay, a double bight extends NNE 1.5 miles to Ben Buckler (33˚54'S., 151˚17'E.). A point 0.5 mile SW of the bluff separates Grama Gramma Bay, on its SW side, from Bondi Bay, NE of it.

A prominent tower, 184m high, stands about 1.5 miles WSW of Ben Buckler. Two water towers exhibiting obstruction lights are situated near Ben Buckler.

About 14 miles E of Port Hacking Point, there are depths of 165m, dark sand bottom, off which the 200m curve extends N and NE to a position 19 miles E from the outer S head of Port Jackson. From this 200m curve, the soundings decrease with regularity toward the shore, which, from 4 miles S of Hacking Point to the entrance of Port Jackson, may be generally approached to the distance of about 1 mile in 36.6 to 54.9m, the bottom being sand. There are no detached dangers beyond 0.3 mile off this part of the coast.

Aspect.—The characteristic features of the coast N and S of Port Jackson assume somewhat different aspects. North Head and its immediate vicinity presents a high, flat-topped precipitous appearance and the coast farther N of this point consists of high undulating hills, thickly covered with trees. The striking contrast is the sterile table-topped cliffs which extend S of the port. If the lighthouses did not present a conspicuous feature, the coastal description first mentioned would indicate whether the land seen is to the N or S of the entrance to Port Jackson.

Approaching Port Jackson from the E, the summit to the N of Sydney Heads will, in clear weather, be seen considerably higher than the adjacent coast. Closer in, it will be identified by the lighthouse and signal station on Dunbar Head and the bold, perpendicular profile of Outer North Head.

On the E approach to the port, a naval vessel reported its radar landfall was not well defined until under 30 miles. Macquarie Light was visible from a great distance and was observed after the vessel was well inside Sydney Harbor. The S portion of the Sydney skyline was partially visible prior to entering the harbor.

Sydney (33˚52'S., 151˚12'E.)

World Port Index No. 53650

4.24 The Port of Sydney is situated in Sydney Harbor (Port Jackson) and is the premier port of Australia. The shores of the port consist of a series of bays and coves which are harbors themselves. This port, commodious and secure, is under the jurisdiction of the Maritime Services Board of New South Wales. Vessels may enter or leave in complete safety at any state of the tide, both day and night, being guided by the buoys and lights.

The limits of the greatest commercial activity extend, with the exception of Farm Cove, from Woolloomooloo Bay to Glebe Island; the great natural advantage of deep water, generally continuing to the shore, being fully utilized, and artificially improved, so that from Bennelong Point W, the frontage is skirted by an almost unbroken line of wharves and quays. About half of Sydneys general cargo traffic is containerized.

Sydney Ports

http://www.sydneyports.com.au

Winds—Weather

At Sydney, at 0900, W winds are predominant in the winter months, but the winds are variable in summer. At 1500, they are variable in winter but E or NE in summer. Mean wind speeds are 6 to 7 knots in all months at 0900, but at 1500 the average values vary from 7 knots in May and June to 12 knots in December and January. Gales occur, on the average, on 2 days per month in July and from October to January, but less frequent in other months.

The NE winds in summer, for the most part, are associated with good weather. Stronger NE winds generated from a high pressure system over the Tasman Sea and lower pressure inland, changes the weather to overcast conditions with rain and is referred to as the “black northeaster.” Thunderstorms are more frequent in the vicinity of Sydney than in any other coastal region of Australia.

Gales from the E raise a heavy sea upon this coast, breaking with great violence not only upon Sydney Heads, but also occasionally right across the entrance and within the entrance on to Middle Head. These gales are frequently attended by banks of haze which might prevent the lights being seen at night.

When a heavy sea is running between Sydney Heads, a red square flag with a diamond shape below it will be displayed at Dunbar Head Signal Station and at the flagstaff at **Fort Denison** (33˚51.4'S., 151˚13.5'E.).

Tides—Currents

The mean spring range for Port Jackson is 1.3m. During the summer months, the daytime tides are usually higher than the nighttime tides; with the reverse occurring in the winter months.

Offshore, in the vicinity of Port Jackson, the current sets parallel to the shore, with the ebb current setting to the S and the flood setting to the N. Within the entrance channel, the current sets across the sound, then close along the shore from Inner North Head to Outer North Head. This tends to leave most of the channel in SW on the ebb.

Between Bradley’s Head and South Head, the ebb and flood current run generally parallel with the dredged channels, at a drift approaching 1 knot. From Bradley’s Head to the Sydney Harbor Bridge, the set of the current is generally E-W at less than 1 knot; the current in this portion of the bay is affected by the numerous coves and points that make up the coast of the area. These features create weak eddies at various places across the bay.

Depths—Limitations

The bar, with Sow and Pigs Shoals, formerly extended nearly across Port Jackson between South Head and George Head. Western Channel, the main channel which is generally used by vessels both entering and leaving, has a controlling depth of 13.7m deepening gradually to 15.8m at its NE end. Eastern Channel is dredged to 12.2m on the range and it is reported the depth in the harbor entrance is 24.3m. A wreck, with a least depth of 12.1m, lies just SW of South Head in Eastern Channel.

At times, a heavy swell sets into the harbor, which requires an allowance for a scend of 2m in the entrance; this must be duly considered by vessels of deep draft.The Port Operations and Communication Center is housed in a tower, 87m above sea level, which is situated at Millers Point and provides for port traffic management, operating and information services, and radio navigational information services on a continuous watch, maintained on VHF channel 16. Traffic movements and approval to enter or leave a berth are controlled from this center.

The **Sydney Harbor Bridge** (33˚51'S., 151˚13'E.) spans the channel just W of Sydney Cove. The vertical clearance at the center of the span is 53.4m, reducing to 48.8m, 183m from center. The center is marked by a diamond shape, which is bordered in red neon lights at night.

The **Pyrmont Bridge** (33˚52'S., 151˚12'E.) spans the S end of Darling Harbor and is of a swing span type. The navigable width is 21.3m through the spans. The bridge will open only on special occasion or with prior arrangement.

The **Glebe Island Bridge** (33˚52'S., 151˚11'E.) spans the entrance to Rozelle Bay; it is a fixed span, with a vertical clearance of 27m. The old swing span, standing close N of the fixed span, is permanently open to shipping and has a navigable width of 18m in the E channel; the W channel is permanently closed to shipping.

Garden Island and Woolloomooloo Bay have ten berths, which includes the Fleet Base East. Together this forms Australia’s largest naval base. The Oil Wharf, the Cruiser Wharf, the East Wall, Captain Cook Graving Dock, the West Wall, and the Fitting Out Wharf are all situated here.

Sydney Cove, with three berths, is a passenger terminal. The cove is a restricted area; unauthorized vessels are not permitted to enter the restricted area, which is best seen on the chart.

Walsh Bay has nine berths; all have cargo sheds. The largest is No. 8, with a length of 207m and alongside depths of 9.1 to 12.5m.

Darling Harbor has 21 berths and has undergone extensive port development. The largest berths are Berth No. 4 and Berth No. 5, with a lengths of 313m and 295m, respectively, and depths at of 11m at Berth No. 4 and 10.8m at Berth No. 5. Berth No. 39 is the location of Sydneys first inner city heliport.

Pyrmont has 14 berths.

Rozelle Bay has six berths, with 672m of total wharfage and depths of 2.7 to 6.1m alongside.

Glebe Island Container Terminal Complex consists of two berths, 468m long. Depths at the berths and in the approach channels are 11.8m. At Glebe Island, Johnson's Bay, wharves have been constructed, with a length of 312m and depths of 11.6m alongside.

White Bay Container Complex has three berths. There are depths of 11m in the approach channe to these facilities. Berth No. 5 and Berth No. 6 are the largest berths, 405m long, with depths of 11m alongside. In 1984, Berth No. 3 was under construction, which has a length of 186m and a depth of 11m alongside.

The A.N.L. Terminal at Mort Bay contains two ro-ro berths, with a length of 133m. There are depths of 6.8 to 9.7m alongside.

Courtesy of Sydney Ports Handbook

Glebe Island from W

CalTex Oil, situated at Ballast Point, can accommodate a vessel to 213m in length. There is a depth of 8.1m at the berth.

Snails Bay Dolphins has four berths, each with a length of 215m and depths alongside of 10 to 11m.

Gore Bay contains three Shell Oil berths. Berth No. 1 can accommodate vessels up to 259m long, with an alongside depth of 13.7m, but a depth of 13.2m has been reported just NE of the berth. Berth No. 2 and Berth No. 3 have depths of 8.5m in the approaches, and will accept vessels up to 171m in length. Depths at the berths range from 9.4 to 10.4m

Balls Head Coal Loading Jetty offers two berths; the N side of the pier has a length of 146m, a depth of 6.6m, and is used as a lay-up berth. The S side of the pier has a length of 146m and alongside depths of 10.6m.

The Balmain Coal Loading Berth is 333m long, with a depth of 11.6m. The maximum length of a vessel using this berth is 198m; the maximum beam allowed is 29.5m.

Berrys Bay contains two berths belonging to BP Australia No. 2 Berth can accommodate vessels up to 183m long. No. 1 Berth can accommodate vessels up to 160m long. Depths alongside range from 9 to 10.1m.

Chowder Bay is a Naval Base. A fuel wharf is situated on its NE side. There is a charted depth of 12.1m alongside. Naval authorities should be consulted before attempting to berth here

Aspect

Outer North Head and its immediate vicinity appear high, flat-topped, and precipitous, but the high, undulating, and thickly-wooded hills which rise from the coast farther N contrast strikingly with the bare table-topped cliffs extending S of the port; thus these hills or cliffs, when sighted, will indicate whether the land seen is N or S of the port, even if Macquarie Light does not present a distinctive feature.

The entrance to Port Jackson and Sydney Harbor lies between Dunbar Head and South Head, 1 mile NNW, on the S side and Outer North Head (33˚49.5'S., 151˚18.0'E.), 1.7 miles NNE of Dunbar Head, and Inner North Head 0.7 mile WNW, on the N side.

Pilotage

Sydney Pilot Service

http://www.sydneypilotservice.com.au

Sydney Sea Pilots

http://www.sydneyseapilots.com.au

Courtesy of Sydney Ports Handbook

The Glebe Island Bridge, White Bay, and Blackwattle Bay from W

Pilotage is compulsory except for vessels holding exemption certificates for the port. Vessels approaching Port Jackson are advised to contact “Harbor Control” on VHF channel 13, and listen for the pilot vessel, or to exchange visual signals with the signal station just S of Hornby Light (33˚50'S., 151˚17'E.). The pilot boarding ground is situated 4 miles due E of Hornby Light; vessels are not permitted W of this position without the consent of the harbormaster. Vessels are not to exceed the speed over 8 knots while boarding or discharging the pilot. Vessels are to maintain an underkeel clearance equivalent to 10 per cent of its draft.

The vessel's ETA should be sent to Sydney Harbor Control on VHF channel 12 at least 3 hours in advance, confirming 1 hour prior to arrival. When within 5 miles of the pilot boarding ground, "Harbor Control" should be contacted for instructions.

Traffic Reporting Points	
Place Name	**Position**
North Head (inbound only)	33˚ 49.8'S, 151˚ 17.7'E
Junction Buoy	33˚ 49.8'S, 151˚ 16.3'E
Bradley’s Head	33˚ 51.4'S, 151˚ 14.9'E
Fort Denison	33˚ 51.3'S, 151˚ 13.5'E
Longnose Point	33˚ 50.8'S, 151˚ 11.2'E
Looking Glass Point	33˚ 50.7'S, 151˚ 07.4'E
Wentworth Point	33˚ 49.4'S, 151˚ 07.4'E

Regulations

Port limits.—The port limits of Port Jackson are defined by the arc of a circle 4 miles in radius, centered on Hornby Light.

Quarantine.—The quarantine line for the port is drawn from Darling Point to Bradley’s Head; vessels are not to cross this line until pratique is granted. The quarantine anchorage is not defined, but is usually **Spring Cove** (33˚49'S., 151˚17'E.).

Traffic regulations.—A Prohibited Anchorage and Restricted Area for the control of traffic within Sydney Heads has been established, as follows:

1. A line drawn from Outer North Head 090˚ to the port limit line.
2. A line drawn 130˚ from Hornby Light to the port limit line.

Additionally, the entrance range has been designated as a Traffic Separation Line. The body of water N of the line has been designated Area A; the area S of the line has been designated Area B. Entering vessels may transit area A only, and departing vessels may transit Area B only.

Entering vessels must contact "Harbor Control," as stated previously, and may not proceed W of the pilot boarding ground without the permission of the harbormaster.

Several areas within the approaches to, and the waters of Port Jackson, have been designated as Prohibited Areas and Naval Waters and are best seen on the chart.

Masters should procure a copy of the port regulations from the Maritime Services Board of New South Wales upon arrival.

Speed limits.—Vessels must not exceed a speed of 12 knots between Inner North Head and Bradleys Point, and a speed of 10 knots between Bradleys Point and Balls Head.

Fleet Base East.—Pilotage is compulsory for foreign warships. Naval Pilot is transferred via Sydney Sea Pilot launch. The pilot boards in position 33˚50'S, 151˚21'E approximately 4 miles due E of Hornby Light.

Ships entering Sydney proceeding to Fleet Base East, Garden Island, or Man-of-War Anchorage should call Harbor Control when 5 miles from the port. Ships should maintain a listening watch on VHF channel 13 and report when passing North Head (inbound only), Junction Buoy, and Bradley's Head.

Anchorage

Merchant vessels can anchor N of a line joining Bradley Head to Kirribilli Point, and in Double Bay clear of the Naval anchorages which lie E of Garden Island and in Farm Cove. The Sound is immediately within the entrance occupying almost 1.5 square miles, with regular soundings in 14.6 to 16.5m, branching N to Spring Cove North and Middle harbors, but the area is exposed to the ocean swell and therefore offering only temporary anchorage with offshore winds. Vessels may wait here for a tug or a favorable opportunity for entering the port.

Anchorage is prohibited within 0.1 mile of any wharf, jetty, bridge, or in such a position as shall obstruct the approach to these facilitie,s including in the vicinity of a submarine cable or a pipeline.

Explosives anchorage.—Vessels with explosives aboard must not anchor W of a line joining Darling Point and Bradley's Head.

Directions

From the S.—Vessels approaching Sydney Heads from the S will probably sight the entrance to Botany Bay, which lies 10 miles to the S.

From the N.—Macquarie Light should be left open of North Head to clear Long Reef, 5 miles N of it. The suburb of Manly, with its fringe of pine trees as well as the buildings of the Cardinal's Palace, are prominent features before getting up with the North Head.

Inbound—Western Channel.—From the pilot boarding ground, enter the Heads just N of the entrance range line and steering about 294˚. Keeping along the N shore, about 400m off, steer for Western Channel when nearly abreast of Inner North Head. Keep to the starboard side of the channel until Western Channel Light is astern, then alter course to pass between Bradley's Head Light, and the buoy SE of it. Take care to avoid a 10.3m patch about 0.3 mile E, and the wreck 0.3 mile SE of the light. Round Bradley's Head, and steer for the N pylon of the Sydney Harbor Bridge, keeping N of **Fort Dennison** (33˚51'S., 151˚13'E.).

Inbound—Eastern Channel.—From the pilot boarding ground, enter the Heads as previously directed. When nearly abreast of Inner North Head, change course gradually S to bring the Eastern Channel Range Lights into alignment, and enter the channel. When clear of the shoals on the W side of the channel, steer for Bradley's Head and proceed as previously directed.

Outbound—Western Channel.—Keeping a good lookout for ferry traffic from Sydney Cove, pass S of Fort Dennison. Steer to pass S of the buoy SE of Bradley's Head. When clear of the buoy, change course for Western Channel, keeping a good lookout for inbound vessels using Eastern Channel. When free of South Head, proceed to sea, keeping S of the entrance range.

Outbound—Eastern Channel.—Steering as previously directed, change course for Eastern Channel Light when clear of the buoy off Bradley's Head. Round the light about 200m off and pick up Eastern Channel Range Lights in line astern. A good mark in clear weather is to keep **Manley Pier** (33˚48'S., 151˚17'E.) open of **Manley Point** (33˚49'S., 151˚17'E.). When clear of the channel proceed to sea, keeping S of the range line.

Caution

Hazardous operations involving explosives are conducted regularly in Naval Waters. Vessels are warned not to remain in the vicinity of warships and ammunition barges displaying the International Code Flag B.